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ABSTRACT

Researchers and the committees established for the protection of research participants are obliged to consider the ratio of ethical costs to benefits when making decisions about whether a study should be conducted. Pre- and post-questionnaires were administered to students participating in reserach projects to assess their opinions concerning psychological research, researcher truthfulness, and willingness to participate as a subject in research projects. The post-questionnaire also assessed the number of experiments in which a participant reported experiencing specified costs or benefits. Results indicated that negative opinion change was associated with being informed of deception and with suspecting deception. Demonstration of the negative impact of deception, even in a benign research environment, emphasizes the importance of minimizing unnecessary deception in research with student participants. (Author/CS)

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Costs and Benefits of Research and Participant Opinion Change

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Costs and Benefits of Research and Participant Opinion Change

In order to protect participants in research from potential harm, the American Psychological Association has adopted ethical principles for the conduct of research (APA, 1973). According to these principles, every decision to conduct research with human participants involves an ethical dilemma: Do the benefits of the research outweigh, or at least equal, the costs of the research? Individual researchers and the committees established for the protection of participants are ethically obligated to consider the ratio of costs to benefits in making decisions about whether a study should be conducted.

The revision of the Ethical Standards for Research with Human Subjects (APA, 1973) prompted several writers to call for empirical research on costs and benefits, considering such data an important aid in making decisions about ethical dilemmas in designing research procedures (Berscheid, Baron, Dermer, & Libman, 1973; Committee on Ethical Standards, 1971, 1972; and Gergen, 1973). The present study is concerned with identifying costs and benefits of research participation associated with opinion change of participants in a program of research conducted by a university psychology department. The results of the study could aid the department researchers and ethics committee in implementing procedures that minimize the costs and maximize the benefits of research participation.

A number of previous studies have investigated costs and benefits of research participation. Among the studies that have addressed costs, the

cost that has received the most attention is the use of deception. Carlson (1971), Levenson, Gray, and Ingram (1976), and Seeman (1969) have found a continuing high frequency of the use of deception in research, thus highlighting the importance of assessing the effects of deception on participants.

Evidence of the negative effects of deception has been found in a few experiments. Wilson and Donnerstein (1976) obtained unfavorable ratings of research procedures involving deception. Silverman, Schulman, and Wiesenthal (1970) found that participants in deception experiments tend to present themselves in a favorable manner in later experiments. Findings by Gruder, Stumpfhauser, and Wyer (1977) suggest that the use of deception may have the result that participants no longer believe what experimenters say. In contrast to the studies cited thus far, Bickman and Zarantonello (1978) found no effect of the use of deception on ratings of the harmfulness of the experiments to the participants. The finding by Straits, Wuebben, and Majka (1972) that the use of deception negatively affects personal value ratings of experiments only if the cover story is obviously false suggests that the effects of deception vary with how the deception is conducted. In a study concerned with whether debriefing will eliminate negative effects of deception, Walster, Berscheid, Abrahams, and Aronson (1967) found that false feedback about participants' personalities affected their self-ratings even after debriefing, though the effect disappeared in a few minutes. In summary, the findings suggest that the use of deception can have negative effects, and that debriefing may not eliminate negative effects.

Invasion of privacy, another cost associated with psychological research (Kelman, 1977), has been the subject of only a little empirical research. Abramson (1977) found no negative effects of research on sexual experiences in a study that employed anonymous questionnaires and careful debriefing. Farr and Seaver (1975) found that research procedures involving invasion of privacy were rated as less threatening to participants than procedures involving psychological or physical stress.

There is additional evidence of negative effects of research procedures that employ psychological or physical stress. In a study of psychological stress, Glasgow, Sadowski, and Davis (1977) found that the scientific value of an experiment was a more significant factor in judgments of the ethicality of the experimental procedures when psychological stress was involved than when it was not employed. Ring, Wallston, and Corey (1970) found that debriefing reduced participants' feelings of regret in a replication of the Milgram experiment, a finding that suggests that the negative effects of psychological stress can be decreased through debriefing. In a study of physical stress, Berscheid et. al (1973) found that debriefing did not eliminate the negative effect on participants' willingness to participate when participants complied with instructions for a physically harmful procedure.

The present literature review located research on only one benefit associated with research participation: the scientific value of the experiment. Glasgow et al.'s (1977) results indicate that judgments of the ethicality of an experiment are influenced by its scientific value.

The research evidence that has been reviewed has important implications

for estimating the significance of costs and benefits associated with psychological research. However, with the exception of the Ring et al. (1970) study, none of the research has been conducted in actual research situations. Most of the studies used descriptions of experiments or simulated participation to obtain data. Though the studies are high in internal validity, their external validity, the generalizability of the results to actual research situations, is problematic. The present study is an assessment of costs and benefits associated with participant opinion change in a large program of ongoing research. Significant results will have direct implications for changes in the conduct of this program of research. To the extent that the results of the present correlational field study corroborate the findings of previous experimental findings, we can be more confident that both types of studies have identified costs and benefits that have positive or negative effects on research participants in vivo.

The work of Berscheid et al. (1973) and a preliminary survey by the authors (Bloch & Watson, Note 1) have demonstrated the utility of multiple criteria for assessing the impact of costs and benefits on participants. The current study thus employs multiple outcome criteria to investigate the relationships between several costs and benefits of research participation and opinion change in participants. As in many psychology departments, students in Introductory Psychology are encouraged to participate in experiments as part of the educational process. Students are allowed to write a short paper rather than participate in experiments if they prefer. The department in which the research was conducted attempts to follow the principles for the conduct of research set forth by the American Psychological Association

(1973). A departmental research ethics committee, under the aegis of an institution-wide research ethics committee, reviews all research proposals and determines whether the research satisfies the APA's ethical guidelines.

At the beginning of the spring semester, 1979, a total of 491 students in two sections of Introductory Psychology were given a questionnaire asking for their opinions of psychological research, researcher truthfulness, and for a rating of their willingness to voluntarily participate in research. Decreases in any of these items is a cost of research which is the ethical responsibility of investigators to minimize, according to A.P.A. Ethical Principles. For the items on willingness to volunteer and opinion of psychological research each subject was asked to circle one of five possible choices for each, ranging from very willing or very high opinion to very unwilling or very low opinion. On the question concerning researcher truthfulness subjects had to choose from three choices which included: psychologists were deceiving, over simplifying, or as truthful as possible when informing participants of the nature of a study. At the end of the same semester, a second questionnaire was administered to the same classes which included the same questions on opinions of research, researcher truthfulness, and willingness to volunteer. Questions on the frequency with which students experienced the following costs and benefits were also included on the second questionnaire: informed of a deception, suspected a deception, experienced anxiety, learned about research in general, learned about a specific research topic, felt free to discontinue participation, were treated with respect, were informed of the nature of the experiment at the start, informed of the nature of the experiment at the end, never informed of the nature of the experiment, and given an oversimplified explanation of the experiment. Of interest was the extent of and direction

of opinion change students would show as a result of their experiences and the relationships between the particular costs and benefits and particular opinion changes.

RESULTS and DISCUSSION

Completed pairs of questionnaires were obtained from 332 students, or 68% of all the students registered for the sections. The majority of the students did not change their opinions of psychological research (59%), researcher truthfulness (73%), or their willingness to volunteer (56%). For students whose opinions changed, they tended to grow more negative over the three opinions ($X2(2)=7.82$, $p<.02$). The findings that a majority of participants did not change their opinions and that those who did change tended to become more negative are apparent in figure 1, which presents the direction of opinion change for the three criterion variables. Figures 2, 3, and 4 present the initial and final opinion levels for each of the criterion variables. It is apparent from these that both inital and final opinions are generally favorable.

Chi square tests of association were used to test for relationships between each cost or benefit variable and each change in criterion opinion. Initially, the direction of opinion change was tested as a function of the number of experiments containing each cost or benefit. When opinion change was associated with the frequency of occurence of a cost or benefit, it was found that there were two possible sources of relationship: opinions changed in a particular direction the more frequent the cost or benefit was

experienced, or the frequency of a cost or benefit was related to the probability of opinion change in either direction, up or down. These two possible sources of relationship were tested for all the significant relationships between opinion change and cost or benefit frequency. In order to determine whether a cost or benefit was related to the direction of opinion change, the frequency of a cost or benefit experience was compared between subjects whose opinions went up and those who went down. Separate chi square analyses determined whether the same experiences were related to likelihood of opinion change by pooling the subjects whose particular opinions changed up or down and comparing their cost or benefit frequency to that of the subjects whose opinions did not change.

Directional opinion changes were associated with two cost variables: known and suspected participation in deception experiments. Opinions of psychological research ($X2(1)=8.60$, $p<.01$) and researcher truthfulness ($X2(1)=8.13$, $p<.01$) were both negatively related to experiencing deception, while only worsening opinions of researcher truthfulness were associated with suspecting a deception ($X2(1)=7.02$, $p<.01$). These data provide evidence of negative effects of deception research on participants. Interestingly, there were no consistent changes in the third opinion variable, willingness to participate in further research, as a function of deception.

Changes on all three opinion criteria occurred with increased frequency in experiments in which the participants did not experience the benefit of learning about research in general (Willingness $X2(1)=7.52$, $p<.01$: Research $X2(1)=11.42$, $p<.001$: Truthfullness $X2(1)=14.81$, $p<.001$). However, there

was no consistent direction to the opinion changes. Restated, the more likely a subject was to learn about research, the less likely was a change in any of the criterion opinions. When opinions were changed, they were as likely to go up as down. Examination of the people whose opinions went down revealed that their initial opinions were quite high, while the opposite was true for those whose opinions went up (for example see table 1). This suggests the possible operation of a regression toward the mean for extreme groups. However, such a regression does not account for the finding that learning about research reduced the likelihood of opinion change.

One plausible interpretation is that probability of opinion change is a function of initial expectations. Research participants expecting to learn about research may be maintained in their opinions when that expectation is confirmed. There is ample basis for thinking that initial expectations for learning about research, for example, were high. The Psychology Department's announced rationale for research participation by introductory students was that it would complement their learning in class. Further, the initial scores given for the opinions of psychological research (Fig. 2), researcher truthfulness (Fig. 3), and willingness to volunteer (Fig. 4) were generally high suggesting generally high expectations. If participants had high initial expectations about learning about research, and if having their expectations met would reduce the probability of changing their opinion, there should be higher expectations in subjects whose opinions did not change and who felt they had learned about research. Table 2 presents the initial ratings on opinions of psychologist truthfulness, as an approximation of initial expectations on learning about research, as a function of learning experiences for the group whose opinions did not change. The

subjects experiencing the most learning about research did show the highest initial opinions. Positive correlations between the individual's learning experiences and their initial opinions of psychological research ($r(330)=.31$, $p<.01$) and researcher truthfulness ($r(330)=.30$, $p<.01$), also reflect the importance of initial opinions in influencing the perception of, or reaction to, subsequent costs and benefits.

In addition to the benefit of learning about research, several other costs and benefit variables are related to the likelihood of opinion change but not to the direction of opinion change. Four costs or lack of benefits were associated with increased frequencies of opinion change on the criterion of researcher truthfulness: exp eriencing anxiety ($X2(1)=6.27$, $p<.05$), not feeling free to discontinue participation ($X2(1)=9.31$, $p<.01$), not being treated with respect ($X2(1)=10.28$, $p<.01$), and not being informed of the nature of the experiment at the start ($X2(1)=15.47$, $p<.01$). Interestingly, of these variables only the experience of not feeling free to discontinue participation was related to change on a second criterion: opinion of psychological research ($X2(1)=4.51$, $p<.05$). Receiving oversimplified explanations was related to willingness to volunteer. Again, these relationships are interpreted as reflecting important variables which interact with initial expectations to influence the probality of opinion change. In individual instances this interaction may influence the direction of opinion change as well.

The matrix of correlations among the cost and benefit variables showed several interesting relationships since many of the costs and benefits were relatively highly correlated with each other. All the correlations to be

reported are highly significant (df=330, p<.001). As one would expect, being informed at the start of an experiment was negatively related to being informed at the end (r=-.47), and with never being informed (r=-.30). Similarly, the positive correlation between being informed at the end and being informed of a deception (r=.40) is intuitively straight forward. Feeling treated with respect was associated with 6 other cost or benefit variables: being informed at the start (r=.31), being informed at the end (.41), being informed of a deception (.25), feeling free to discontinue participation (.60), learning about research (.40), and learning a specific research topic (.31). Thus, being informed of what to expect and the purposes for the project and research in general all were associated with participants' feelings of being treated with respect.

There are several cautions one should make before generalizing from this data. As a first approximation to assessing the impact of a departmental research participation requirement on student participants this method has several flaws. It relies on participant recall over periods up to a semester in length. This problem may be exacerbated by requiring participants to assess the presence or absence of each cost or benefit in each of the experiments in which they participated. Finally, the costs and benefits chosen may not have been the most important or easiest to assess.

With these reservations in mind, there are several conclusions that may be drawn from these results. The demonstration of the negative impact of deception, even in a benign research environment, emphasizes the importance of minimizing unnecessary deception in research with student participants. Deception studies proposed by students should, for example, have sufficient

scientific merit to win approval of research review committees independent of their benefits to the student researcher's growth and development. Further, considerably more consideration should be given to means of reducing the negative results of deception. The experience of being informed of the nature of the experiment in this environment led, on the one hand, to greater feelings of being respected. On the other hand, the experience of being informed of a deception led to negative changes on more opinions than the experience of suspecting a deception. Thus, the attempt to ameliorate deception by debriefing may not necessarily be effective. In fact it may be more harmful than no debriefing.

The value of utilizing multiple outcome criteria in evaluating the impact of research pariticipation was also demonstrated. The various criterion opinions were influenced by different cost and benefit experiences (table 2). Examination of only one criterion would provide an inadequate indication of the impact of a research program. Conversely, the more criteria that are monitored, the more complete will be the assessment of a research program's overall cost-benefit ratio.

Reference Notes

1. Bloch, R. M., & Watson, N. Associations between rated costs and benefits and rated opinion change by participants in research: A preliminary study. Unpublished data, 1979.

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Table 1

Initial Opinions of Researcher Truthfulness for Participants Whose Opinions Changed

Init. Opin.	Opin. Down	Opin. UNCHANGED	Opin. Up
Low	0	5	13
Med	8	25	31
High	38	211	1

Table 2

Initial opinions of psychologist truthfulness as a function of learning experiences for the group which did not change opinion.

Init. Opin.	Number of learning experiences: 0	1	2+
Low	2	2	1
Med	13	3	9
High	58	45	108

Table 3

Summary of relationships between costs and benefits and opinion change.

Opinion of Psychological Research

- Learning about research
- Not feeling free to discontinue participation
- Being informed of a deception**

Opinion of Psychologist Truthfulness

- Learning about research
- Experiencing anxiety
- Not feeling free to discontinue participation
- Not being treated with respect
- Not being informed at the start
- Being informed of a deception**
- Suspecting a deception**

Willingness to Volunteer

- Learning about research
- Receiving oversimplified explanations

** Relationship was directional.

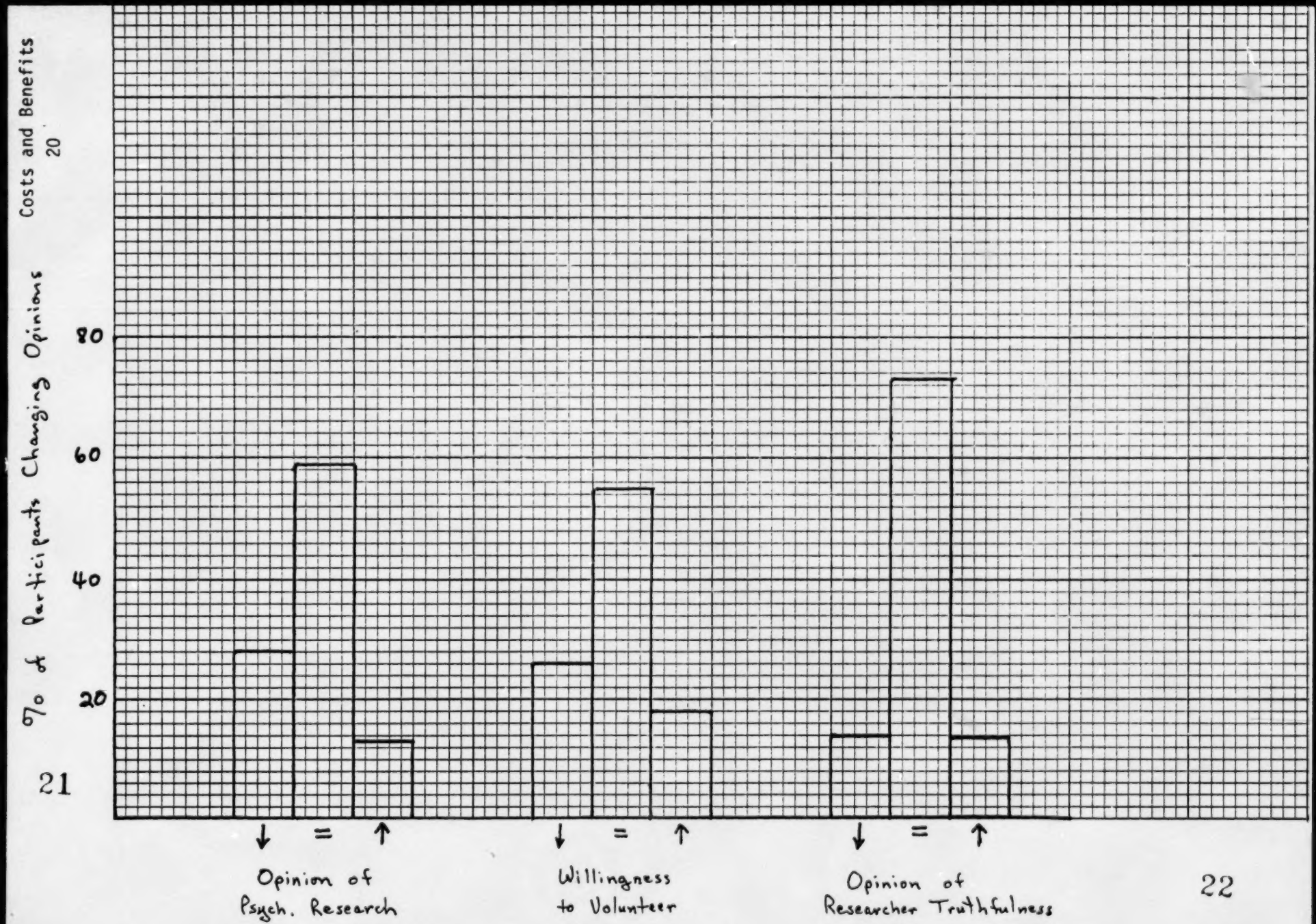

Figure 1. Direction of Opinion Change for Each Opinion

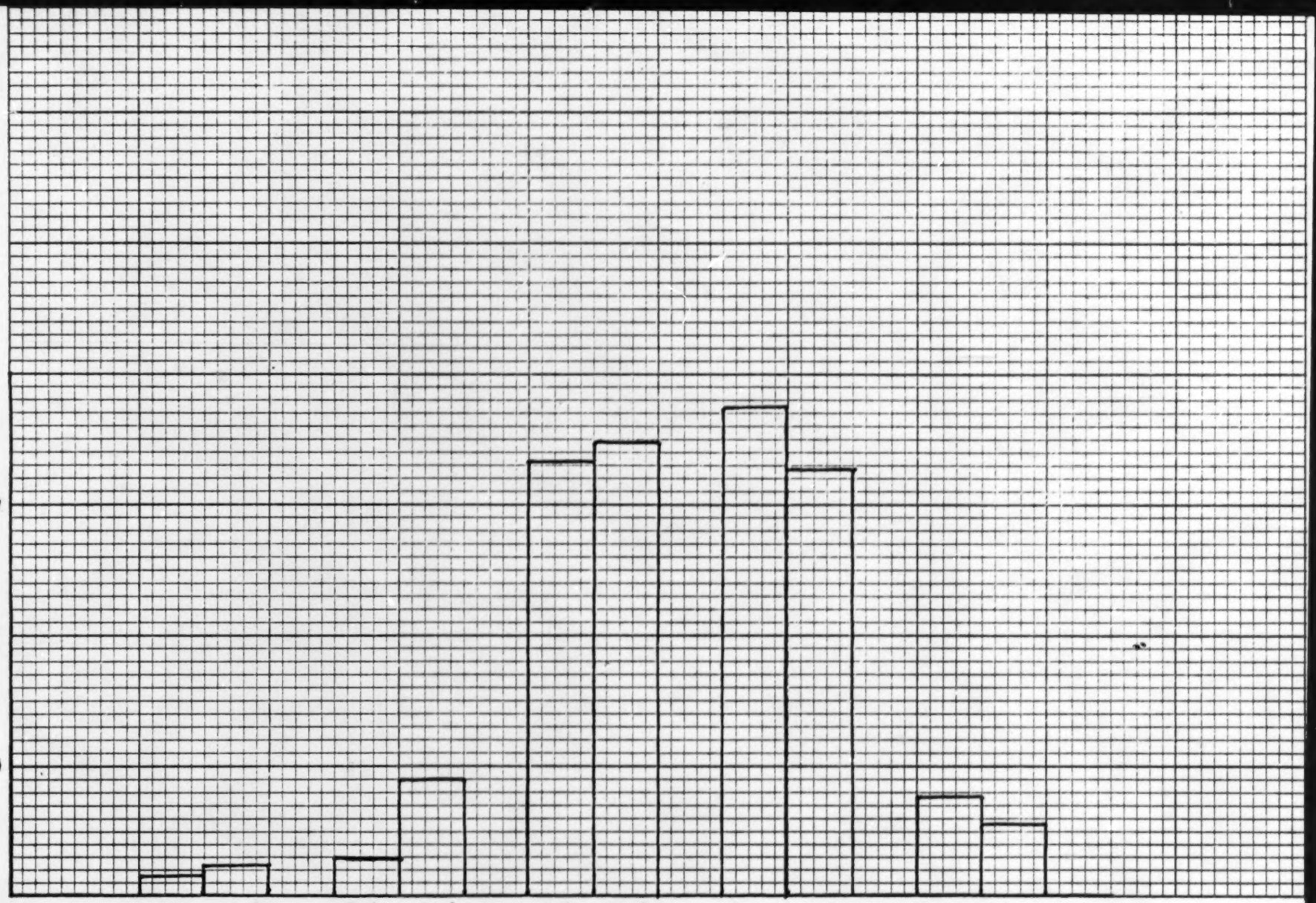

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Figure 2. Initial and Final Opinions of Psychological Research for Entire Sample

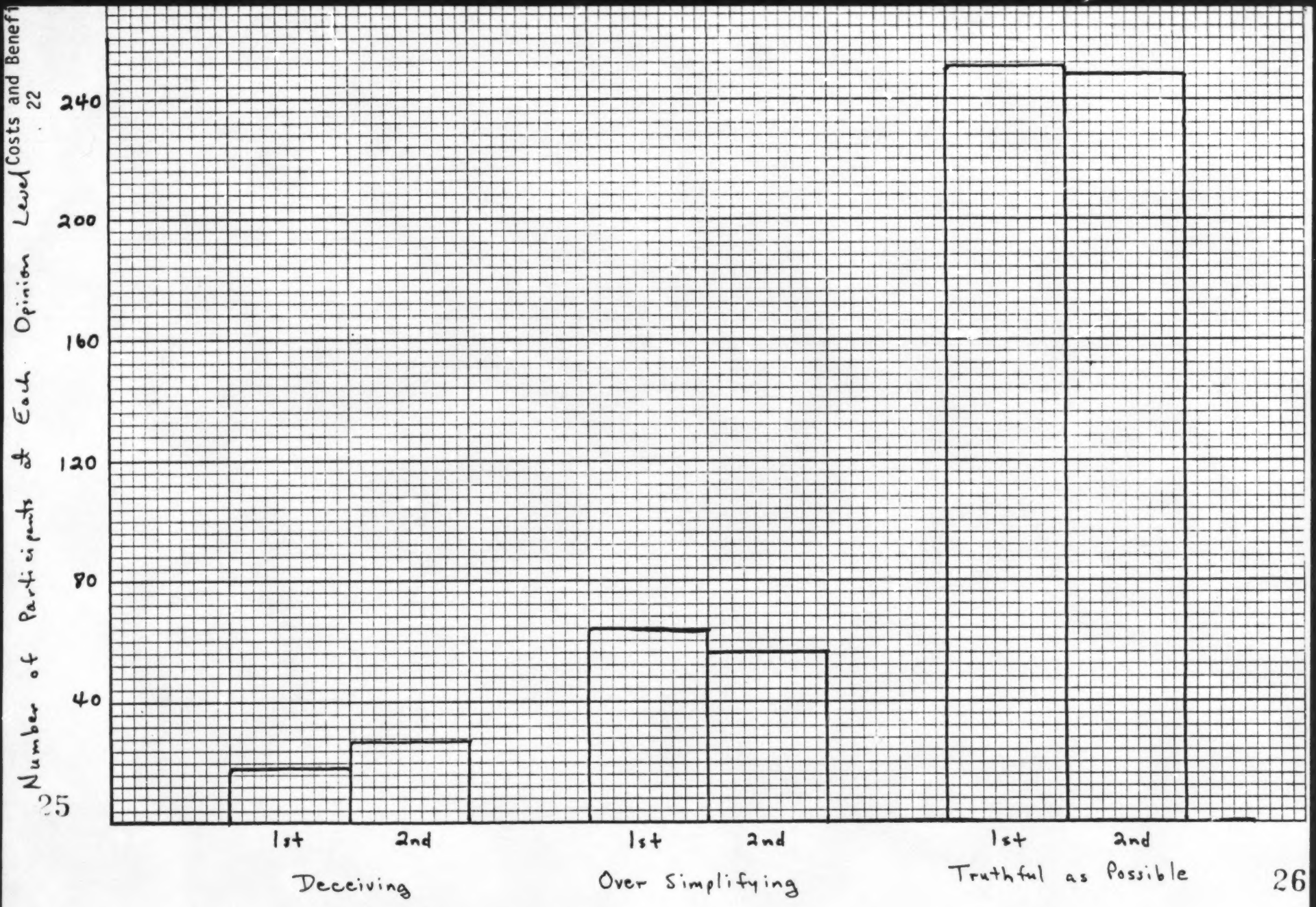

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Figure 3. Initial and Final Opinions of Researcher Truthfulness for Entire Sample

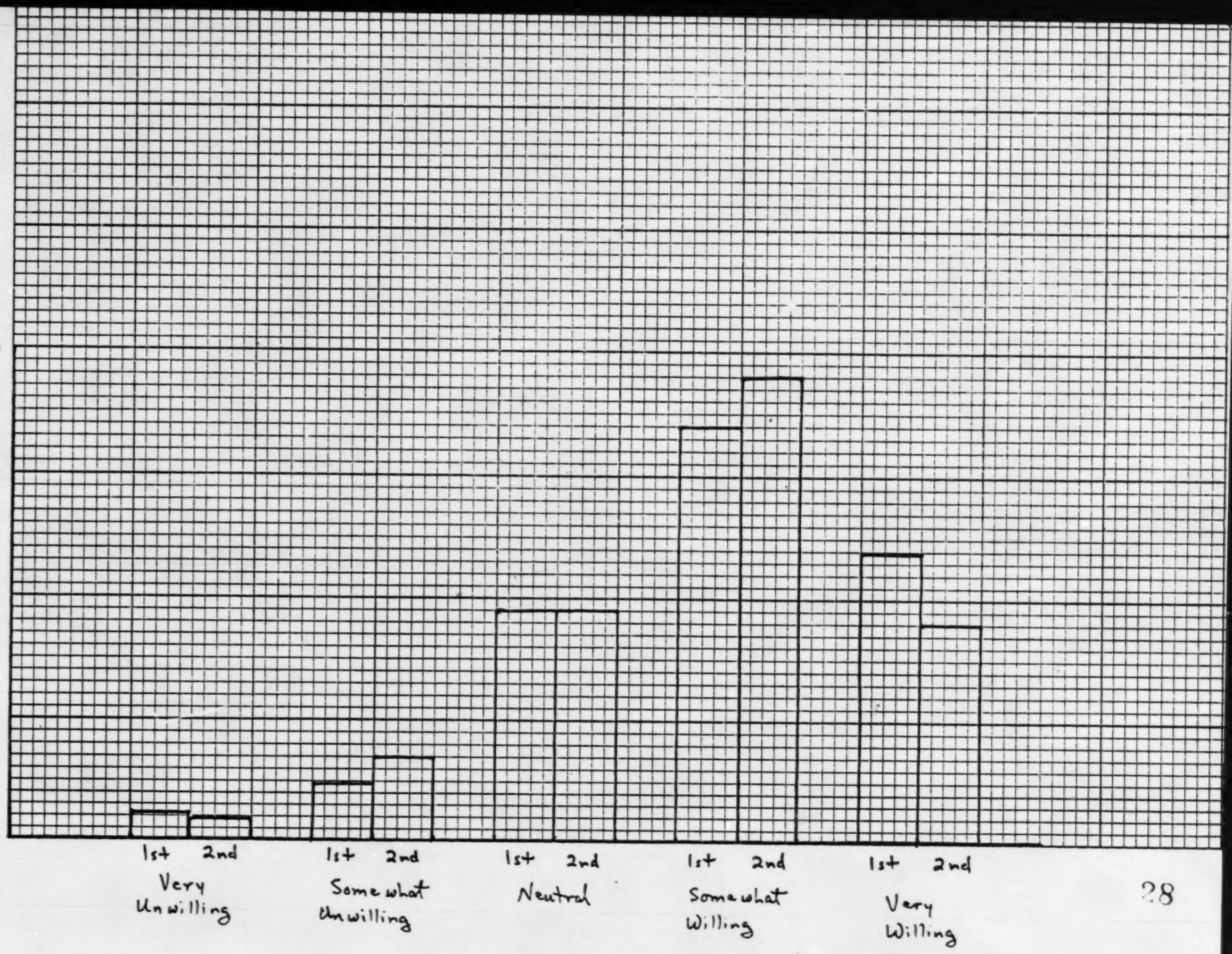

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Figure 4. Initial and Final Opinions of Willingness to Volunteer for Entire Sample